Figures Origin Aufgabe

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1 Linear Fit and error propagation

1.1 Plot of the data points

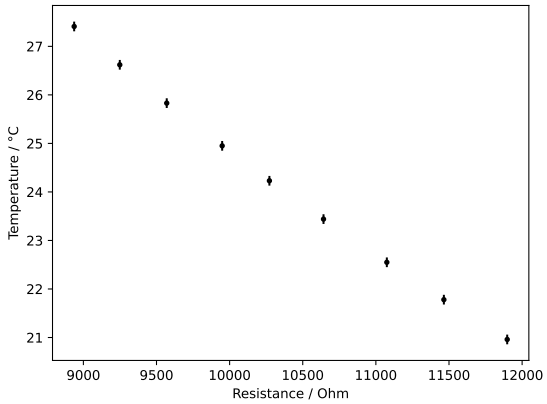

Figure 1: Resistance plotted against Temperature with error bars added.

1.2 Linear Fit

As we can see in Fig. 2, a linear fit was made with the data in Fig. 1.

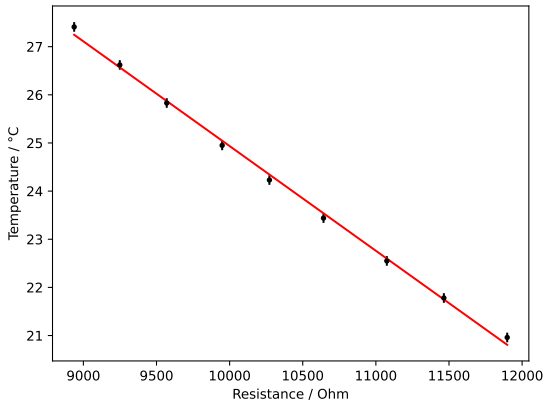

Figure 2: linear fit with the Equation: $y = (-0.00217 \pm 0.00004)x + (46.68 \pm 0.41)°\mathrm{C}$

1.3 Interpolation

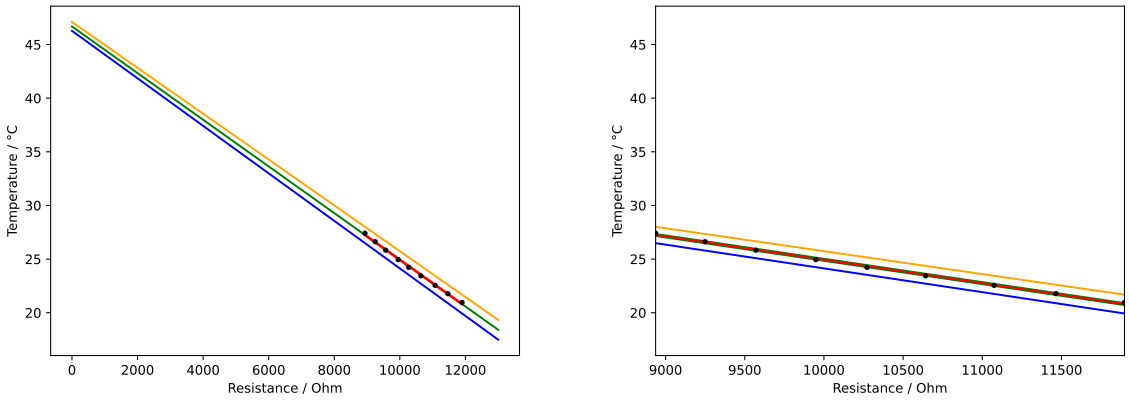

Figure 3: Linear fit with maximal (yellow), minimal (blue) and interpolated Temperature (green) added. $y = (-0.00217 \pm 0.00004)x + (46.68 \pm 0.41)C$ Temperature at 0 Ohm is 46.68 ± 0.41 °C

2 Direct and more accurate method - interpolation by shifting the x-axis

2.1 Plot of the data points

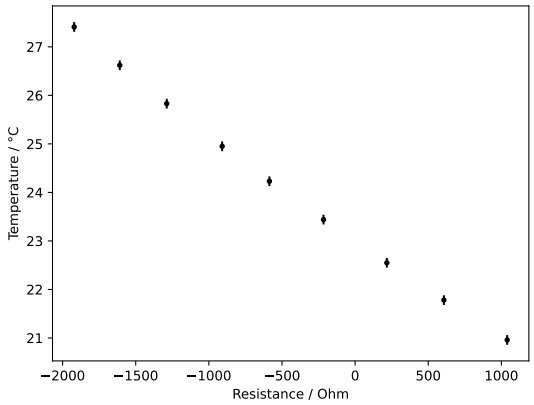

Figure 4: Resistance minus the resistance at the start of the Experiment plotted against Temperature with error bars added.

2.2 Liner fit of the new data set

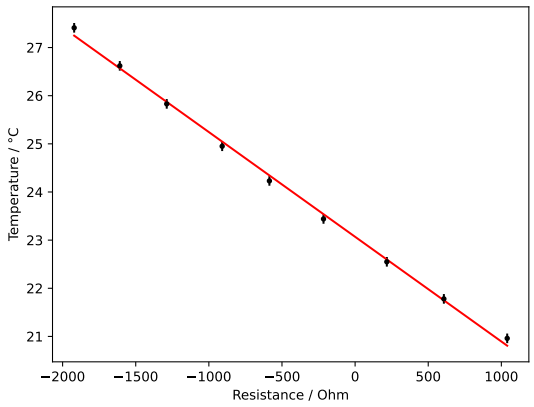

Figure 5: New data set linear fitted. $y = (-0.00217 \pm 0.00004)x + (23.07 \pm 0.04)$°C

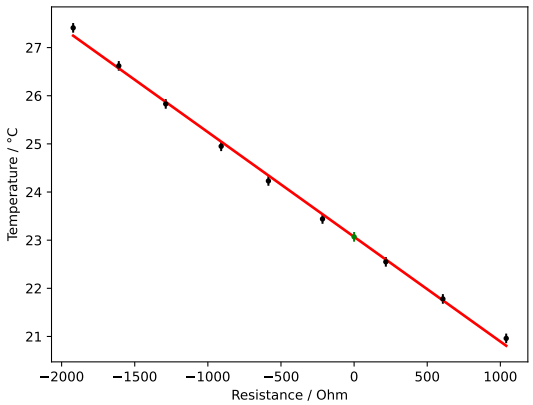

Figure 6: Interpolated temperature at 0 Ohm: (23.07 ± 0.04) °C added to the linear Fit.